

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A blockage detector for a system that produces integrated circuit structures on semiconductor wafers, the system having a chamber for placing the semiconductor wafers, the chamber environmentally coupled to a gas source through a gaseous flow path, the detector comprising:

a flow detector, interposed in the gaseous flow path, that determines a flow rate of gas flowing from the gas supply; and

a flow comparator, communicatively coupled to the flow detector, that compares the detected flow rate of the gas to a baseline flow rate of gas, a decrease in the flow rate of the gas indicative of a blockage in the gaseous flow path.

2. (Currently Amended) The detector of claim 1, wherein the flow detector comprises is a heating element coupled to a power supply, the heating element heating the gas flowing past it.

3. (Currently Amended) The detector of claim 2, further comprising:

a temperature measuring device, communicatively coupled to the heating element; ~~and~~ ,
wherein the heating element is enabled in response to a signal from the temperature measuring device.

4. (Currently Amended) The detector of claim 2, further comprising:

a power measurement device, coupled to the heating element, that measures the amount of power directed to the heating element.
5. (Currently Amended) The detector of claim 1, further comprising:

a flow controller, communicatively coupled to the gas supply, that controls the flow of gas to the chamber; and ,

wherein the flow controller changing the flow of the gas supply to the chamber in response to a signal from the flow detector.
6. (Currently Amended) The detector of claim 1, further comprising: a

control circuitry communicatively coupled to the flow detector, the control circuitry responsive to a predetermined value related to the rate of flow of the gas to the chamber.
7. (Original) The detector of claim 6, wherein the control circuitry is programmable.
8. (Currently Amended) The detector of claim 6, wherein the control circuitry issues ~~issuing~~ an alarm in response to the detection of a predetermined value.
9. (Currently Amended) ~~The detector of claim 6,~~ A blockage detector for a system that produces integrated circuit structures on semiconductor wafers, the system having a chamber for

placing the semiconductor wafers, the chamber environmentally coupled to a gas source through a gaseous flow path, the detector comprising:

a flow detector, interposed in the gaseous flow path, that determines a flow rate of gas flowing from the gas supply;

a flow comparator, communicatively coupled to the flow detector, that compares the detected flow rate of the gas to a baseline flow rate of gas, a decrease in the flow rate of the gas indicative of a blockage in the gaseous flow path; and

control circuitry communicatively coupled to the flow detector, the control circuitry responsive to a predetermined value related to the rate of flow of the gas to the chamber,

wherein the control circuitry updates ~~updating~~ a maintenance schedule in response to the detection of a predetermined value.

10. (Currently Amended) ~~The detector of claim 6;~~ A blockage detector for a system that produces integrated circuit structures on semiconductor wafers, the system having a chamber for placing the semiconductor wafers, the chamber environmentally coupled to a gas source through a gaseous flow path, the detector comprising:

a flow detector, interposed in the gaseous flow path, that determines a flow rate of gas flowing from the gas supply;

a flow comparator, communicatively coupled to the flow detector, that compares the detected flow rate of the gas to a baseline flow rate of gas, a decrease in the flow rate of the gas indicative of a blockage in the gaseous flow path; and

control circuitry communicatively coupled to the flow detector, the control circuitry responsive to a predetermined value related to the rate of flow of the gas to the chamber,
wherein the control circuitry changes ~~changing~~ the operational status of the system in response to the detection of a predetermined value.

11. (Original) The detector of claim 6, wherein the predetermined value is a flow rate.
12. (Original) The detector of claim 6, wherein the predetermined value is a rate of change in the flow rate.
13. (Original) The detector of claim 6, wherein the predetermined value is based on a rate of change in the flow rate.
14. (Currently Amended) ~~The detector of claim 1, further comprising:~~ A blockage detector for a system that produces integrated circuit structures on semiconductor wafers, the system having a chamber for placing the semiconductor wafers, the chamber environmentally coupled to a gas source through a gaseous flow path, the detector comprising:
a flow detector, interposed in the gaseous flow path, that determines a flow rate of gas flowing from the gas supply;
a flow comparator, communicatively coupled to the flow detector, that compares the detected flow rate of the gas to a baseline flow rate of gas, a decrease in the flow rate of the gas indicative of a blockage in the gaseous flow path; and

a second flow detector, ~~the results~~ an output of the second flow detector allowing the locating of the blockage or occlusion.

15. (Currently Amended) A system for producing ~~to produce~~ integrated circuit structures on semiconductor wafers, the system comprising:

a chamber for placing the semiconductor wafers;

a gas source, environmentally coupled to the chamber through a gaseous flow;

a flow detector, interposed in the gaseous flow path, that determines a volume of gas flowing from the gas supply; and

a flow comparator, communicatively coupled to the flow detector, that compares the measured flow of the gas to a baseline flow of gas, wherein a decrease in the flow of gas indicates ~~indicative of~~ a blockage in the gaseous flow path.

16. (Currently Amended) The system of claim 15, wherein the flow detector is a heating element coupled to a power supply, the heating element heating the gas flowing past it.

17. (Currently Amended) The system of claim 16, further comprising:

a temperature measuring device, communicatively coupled to the heating element; and

the heating element is enabled in response to a signal from the temperature-measuring device.

18. (Currently Amended) The system of claim 16, further comprising:

a power measurement device, coupled to the heating element that measures the amount of power directed to the heating element.

19. (Currently Amended) The system of claim 15, further comprising:

a flow controller, communicatively coupled to the gas supply, that controls the flow of gas to the chamber; ~~and the flow~~ wherein the flow controller changes ~~changing~~ the flow of the gas supply to the chamber in response to a signal from the flow detector.

20. (Original) The system of claim 15, further comprising:

control circuitry communicatively coupled to the flow detector, the control circuitry responsive to a predetermined value related to the rate of flow of the gas to the chamber.

21. (Original) The system of claim 20, wherein the control circuitry is programmable.

22. (Original) The system of claim 20, the control circuitry issuing an alarm in response to the detection of a predetermined value.

23. (Currently Amended) ~~The system of claim 20,~~ A system for producing integrated circuit structures on semiconductor wafers, the system comprising:

a chamber for placing the semiconductor wafers;

a gas source, environmentally coupled to the chamber through a gaseous flow;

a flow detector, interposed in the gaseous flow path, that determines a volume of gas flowing from the gas supply;

a flow comparator, communicatively coupled to the flow detector, that compares the measured flow of the gas to a baseline flow of gas, a decrease in the flow of gas indicating a blockage in the gaseous flow path; and

control circuitry communicatively coupled to the flow detector, the control circuitry responsive to a predetermined value related to the rate of flow of the gas to the chamber, wherein the control circuitry ~~updates~~ updating a maintenance schedule in response to the detection of a predetermined value.

24. (Currently Amended) ~~The system of claim 20,~~ A system for producing integrated circuit structures on semiconductor wafers, the system comprising:

a chamber for placing the semiconductor wafers;
a gas source, environmentally coupled to the chamber through a gaseous flow;
a flow detector, interposed in the gaseous flow path, that determines a volume of gas flowing from the gas supply;

a flow comparator, communicatively coupled to the flow detector, that compares the measured flow of the gas to a baseline flow of gas, a decrease in the flow of gas indicating a blockage in the gaseous flow path; and

control circuitry communicatively coupled to the flow detector, the control circuitry responsive to a predetermined value related to the rate of flow of the gas to the chamber, wherein

the control circuitry changes ~~changing~~ the operational status of the system in response to the detection of a predetermined value.

25. (Original) The system of claim 20, wherein the predetermined value is a flow rate.

26. (Original) The system of claim 20, wherein the predetermined value is a rate of change in the flow rate.

27. (Original) The system of claim 20, wherein the predetermined value is based on a rate of change in the flow rate.

28. (Currently Amended) ~~The system of claim 15, further comprising:~~ A system for producing integrated circuit structures on semiconductor wafers, the system comprising:

a chamber for placing the semiconductor wafers; a gas source, environmentally coupled to the chamber through a gaseous flow;

a flow detector, interposed in the gaseous flow path, that determines a volume of gas flowing from the gas supply; and

a flow comparator, communicatively coupled to the flow detector, that compares the measured flow of the gas to a baseline flow of gas, wherein a decrease in the flow of gas indicates a blockage in the gaseous flow path; and

a second flow detector, an output ~~the results~~ of the second flow detector allowing the locating of the occlusion.

29. (Currently Amended) A method ~~for~~ of detecting residue buildup in an apparatus for manufacturing integrated circuit structures on a semiconductor wafer, the apparatus comprising a chamber for placing the semiconductor wafers, the method comprising:

causing a gas to flow through the apparatus ~~a gas~~;

determining a volume of gas flowing from the gas supply; and

comparing the flow of the gas to a baseline flow of gas, wherein a decrease in the flow of gas indicates ~~is indicative of~~ a blockage in the gaseous flow path.

30. (Currently Amended) The method of claim 29, wherein said ~~the step of~~ determining ~~comprising~~ comprises:

heating the gas with an element coupled to a power supply; and

measuring the power consumed by the element.

31. (Currently Amended) The method of claim 30, wherein said ~~the step of~~ determining further ~~comprising~~ comprises:

measuring a temperature of the gas; and

selectively enabling the element enabled in response to said measuring the power ~~step of~~ ~~the measuring the temperature~~.

32. (Currently Amended) The method of claim 29, further comprising ~~the step of~~:

changing the flow of the gas supply to the chamber in response to a signal from the flow detector.

33. (Currently Amended) The method of claim 29, further comprising ~~the step of~~:
detecting a predetermined value; and
selectively initiating an action in response to said detecting a predetermined value ~~the step~~
~~of detecting~~.

34. (Currently Amended) The method of claim 33, wherein said ~~the step of~~ selectively
initiating further comprises ~~comprising the step of~~:
issuing an alarm in response to the detection of a predetermined value based on said ~~the~~
~~step of~~ determining a volume of gas.

35. (Currently Amended) ~~The method of claim 33, the step of selectively initiating~~
~~comprising the step of~~: A method of detecting residue buildup in an apparatus for manufacturing
integrated circuit structures on a semiconductor wafer, the apparatus comprising a chamber for
placing the semiconductor wafers, the method comprising:
causing a gas to flow through the apparatus;
determining a volume of gas flowing from the gas supply; and
comparing the flow of the gas to a baseline flow of gas, wherein a decrease in the flow of
gas indicates a blockage in the gaseous flow path;
detecting a predetermined value; and
selectively initiating an action in response to said detecting; and
updating a maintenance schedule in response to the detection of a predetermined value in
said ~~the step of determining~~ or in ~~the step of~~ said comparing.

36. (Currently Amended) ~~The method of claim 33, the step of selectively initiating comprising:~~ A method for detecting residue buildup in an apparatus for manufacturing integrated circuit structures on a semiconductor wafer, the apparatus comprising a chamber for placing the semiconductor wafers, the method comprising:
- causing a gas to flow through the apparatus;
 - determining a volume of gas flowing from the gas supply;
 - comparing the flow of the gas to a baseline flow of gas, wherein a decrease in the flow of gas indicates a blockage in the gaseous flow path;
 - detecting a predetermined value;
 - selectively initiating an action in response to the step of detecting; and
 - changing the operational status of the apparatus in response to the detection of the predetermined value.

37. (Original) The method of claim 33, wherein the predetermined value is a flow rate.
38. (Original) The method of claim 33, wherein the predetermined value is a rate of change in the flow rate.
39. (Original) The method of claim 33, wherein the predetermined value is based on a rate of change in the flow rate.

40. (Currently Amended) ~~The method of claim 29,~~ A method for detecting residue buildup in an apparatus for manufacturing integrated circuit structures on a semiconductor wafer, the apparatus comprising a chamber for placing the semiconductor wafers, the method comprising:
causing a gas to flow through the apparatus;
determining a volume of gas flowing from the gas supply;
comparing the flow of the gas to a baseline flow of gas, wherein a decrease in the flow of gas indicates a blockage in the gaseous flow path; and
a second flow detector, an output ~~the results~~ of the second flow detector allowing the locating of the occlusion.

41. (Currently Amended) A blockage detector for a system that produces integrated circuit structures on semiconductor wafers, the system having a chamber for placing the semiconductor wafers, the chamber environmentally coupled to a gas source through a gaseous flow path, the detector comprising:

a heating element; interposed in the gaseous flow path and coupled to a power supply, the heating element heating the gas flowing past it;

a temperature-measuring device, communicatively coupled to the heating element, that measures the temperature of the heated gas;

a power measurement device, coupled to the heating element, that measures the amount of power directed to the heating element; and

a flow detection circuit ~~circuitry~~ that determines the flow of the gas past the heating element based on the power consumed by the heating element; and

a flow comparator, communicatively coupled to the flow detection circuitry, that compares the measured flow of the gas to a baseline flow of gas.

42. (Currently Amended) The detector of claim 41, further comprising:
control circuitry communicatively coupled to the flow detection circuitry, the control circuitry responsive to a predetermined value related to the rate of flow of the gas to the chamber.
43. (Original) The detector of claim 42, wherein the control circuitry is programmable.
44. (Currently Amended) The detector of claim 42, wherein the control circuitry is adapted to issue issuing an alarm in response to the detection of a predetermined value.
45. (Currently Amended) ~~The detector of claim 42,~~ A blockage detector for a system that produces integrated circuit structures on semiconductor wafers, the system having a chamber for placing the semiconductor wafers, the chamber environmentally coupled to a gas source through a gaseous flow path, the detector comprising:
a heating element, interposed in the gaseous flow path and coupled to a power supply, the heating element heating the gas flowing past it;
a temperature-measuring device, communicatively coupled to the heating element, that measures the temperature of the heated gas;
a power measurement device, coupled to the heating element, that measures the amount of power directed to the heating element;

a flow detection circuitry that determines the flow of the gas past the heating element based on the power consumed by the heating element; and a flow comparator, communicatively coupled to the flow detection circuitry that compares the measured flow of the gas to a baseline flow of gas; and

control circuitry communicatively coupled to the flow detection circuitry, the control circuitry responsive to a predetermined value related to the rate of flow of the gas to the chamber; wherein

the control circuitry updates ~~updating~~ a maintenance schedule in response to the detection of a predetermined value.

46. (Currently Amended) ~~The detector of claim 42,~~ A blockage detector for a system that produces integrated circuit structures on semiconductor wafers, the system having a chamber for placing the semiconductor wafers, the chamber environmentally coupled to a gas source through a gaseous flow path, the detector comprising:

a heating element, interposed in the gaseous flow path and coupled to a power supply, the heating element heating the gas flowing past it;

a temperature-measuring device, communicatively coupled to the heating element, that measures the temperature of the heated gas;

a power measurement device, coupled to the heating element, that measures the amount of power directed to the heating element;

a flow detection circuitry that determines the flow of the gas past the heating element based on the power consumed by the heating element; and a flow comparator, communicatively

coupled to the flow detection circuitry that compares the measured flow of the gas to a baseline flow of gas; and

control circuitry communicatively coupled to the flow detection circuitry, the control circuitry responsive to a predetermined value related to the rate of flow of the gas to the chamber; wherein

the control circuitry changes ~~changing~~ the operational status of the system in response to the detection of a predetermined value.

47. (Original) The detector of claim 42, wherein the predetermined value is a flow rate.

48. (Original) The detector of claim 42, wherein the predetermined value is a rate of change in the flow rate.

49. (Original) The detector of claim 42, wherein the predetermined value is based on a rate of change in the flow rate.

50. (Currently Amended) ~~The detector of claim 41, further comprising~~ A blockage detector for a system that produces integrated circuit structures on semiconductor wafers, the system having a chamber for placing the semiconductor wafers, the chamber environmentally coupled to a gas source through a gaseous flow path, the detector comprising:

a heating element, interposed in the gaseous flow path and coupled to a power supply, the heating element heating the gas flowing past it;

a temperature-measuring device, communicatively coupled to the heating element, that measures the temperature of the heated gas;

a power measurement device, coupled to the heating element, that measures the amount of power directed to the heating element;

a flow detection circuit that determines the flow of the gas past the heating element based on the power consumed by the heating element;

a flow comparator, communicatively coupled to the flow detection circuitry that compares the measured flow of the gas to a baseline flow of gas; and

a second flow detector, an output ~~the results~~ of the second flow detector allowing the locating of the occlusion.